QuickTime State-of-the-Union

Session 701

QuickTime State-of-the-Union

Tim Schaaff
Vice President of Engineering
Interactive Media Group

WWDC 2003

Worldwide Developers Conference

and

QuickTime Live

Market Update

Frank Casanova
Director
QuickTime Product Marketing

What Did We Set Out To Do?

World-Class Media Architecture

QuickTime Evolution

1991
QuickTime 1

- First video on PC
- "Road Pizza"
- CD-ROM playback
- Compressed video
- Uncompressed audio
- Cinepak Text tracks

1994
QuickTime 2

- QuickTime VR
- Windows playback
- Full-screen video
- MIDI playback
- MPEG-1
- (Mac only) Web plug-ins
- AIFF support
- Drag and Drop
- Timecode support
- QuickTime data pipe

1998
QuickTime 3

- Interactivity
- Real-time Effects and Transitions
- Sorenson Video
- QDesign Music
- Windows authoring
- Qualcomm PureVoice
- QT Java
- DV/FireWire support
- AVI, AVR, and OpenDML
- SMPTE effects
- H.261, H.263

1999
QuickTime 4

- QuickTime Streaming Server
- Darwin Open Source
- QuickTime TV
- Sorenson Video 2
- QDesign Music 2
- MP3 audio playback
- Macromedia Flash
- SMIL
- AppleScript
- JavaScript
- Intelligent web installer

2001
QuickTime 5

- Sorenson Video 3
- Enhanced DV
- Cubic VR
- Media Skins
- Macromedia Flash 4
- New music synthesizer
- MPEG-1 support
- Skip Protection
- Component Downloader

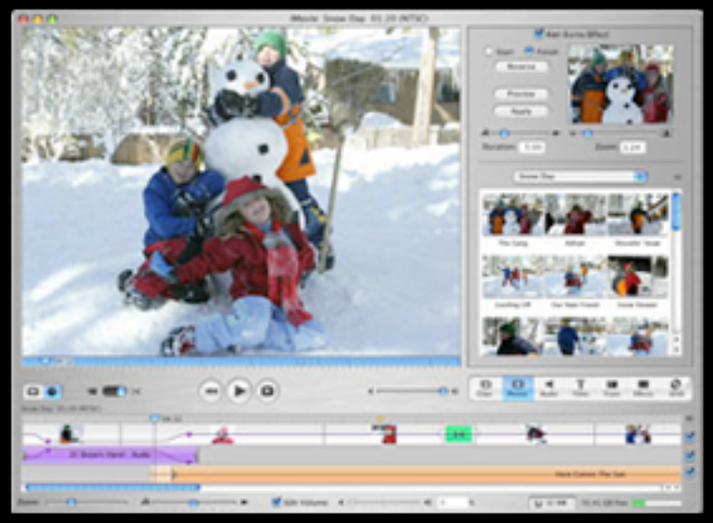
2002
QuickTime 6

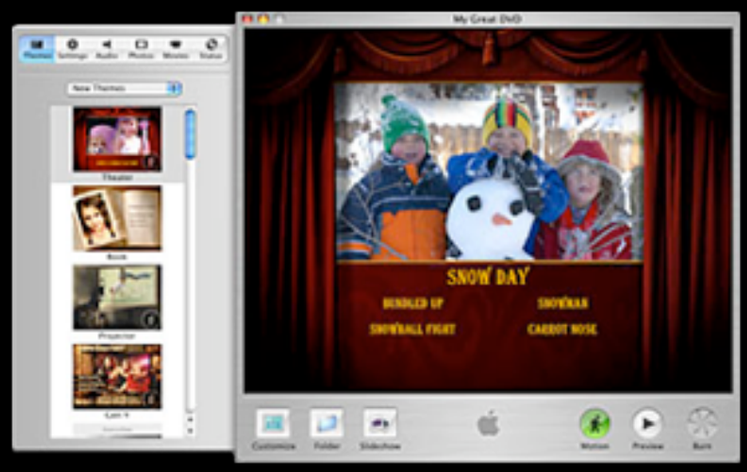
- MPEG-4 support
- MPEG-4 video
- AAC audio
- Instant-On streaming
- MPEG-2 Playback Component
- Macromedia Flash 5
- DVC Pro PAL
- JPEG 2000
- iTunes Music Store audio (M4A, M4P)

Live in Our Own House

Final Cut Pro 4
Emmy Award-Winning
Video Editing Tools

DVD Studio Pro 2
Professional
DVD Authoring




SNOW DAY
BUNDLED UP
SNOWMAN
SNOWBALL FIGHT
CARROT NOSE

Apple – QuickTime

http://www.apple.com/quicktime/

Google SXGP 3GPP home page MPEG-4 Industry Forum Frank Casanova QuickTime Artist Availablility Yahoo! Finance Apple Amazon News

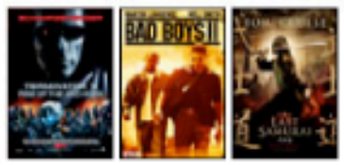
Store Music .Mac QuickTime Support Mac OS X

Download Movie Trailers What's On Why QuickTime Products Tools & Tips Developer

MOVIE TRAILERS

Feature Trailer

New Movie Trailers



QuickTime

what's on

WWDC 2003 Keynote

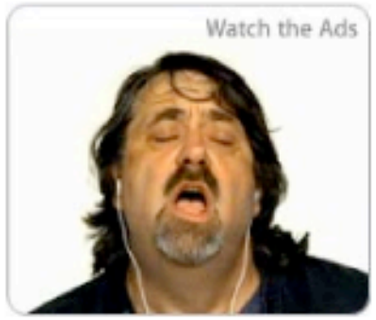
WWDC 2003 Keynote. Tune-in to see Steve Jobs' keynote address.

Listen to "Ladies" from Sarai's debut album, The Original.

Watch the new Michelle Branch video "Are You Happy Now?"

Loud and unrepentant Metallica: see the video for "St. Anger."

Watch how Michael Buble makes this song entirely his own.



QuickTime Products

QuickTime Player
FREE premier multimedia player.

QuickTime Pro
Powerhouse media authoring.

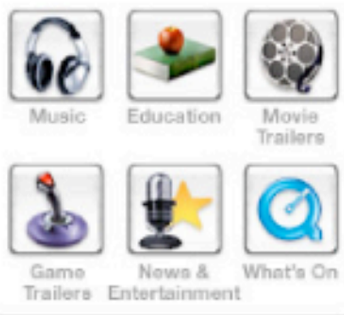
MPEG-2 Playback Component
Play MPEG-2 files with QuickTime.

QuickTime Streaming Server
Free server for internet streaming.

Darwin Streaming Server
Open-source streaming server.

QuickTime Broadcaster
FREE live encoder webcasting.

CHANNELS



Apple - QuickTime - Movie Trailers

http://www.apple.com/trailers/

Google SXGP 3GPP home page MPEG-4 Industry Forum Frank Casanova QuickTime Artist Availablility Yahoo! Finance Apple Amazon News

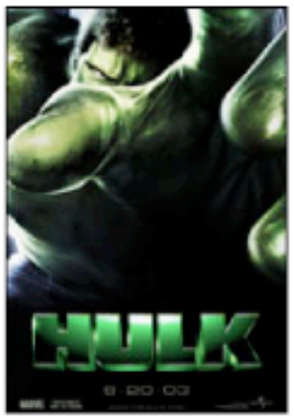
Store Music .Mac QuickTime Support Mac OS X

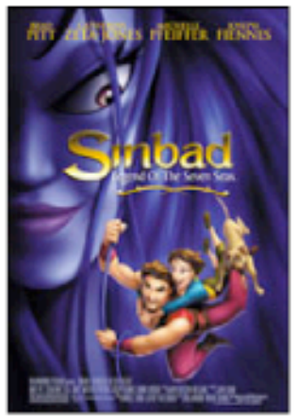
Download Movie Trailers What's On Why QuickTime Products Tools & Tips Developer

QUICKTIME MOVIE TRAILERS

Macworld CreativePro Conference & Expo. July 14-18, 2003 The Javits Center New York, NY

NOW PLAYING





Choose Genre

Power Search
Browse
Requests & Feedback

Inside the Music Store
New Releases
Exclusive Tracks
Pre-Releases
Just Added NEW
Staff Favorites
Up & Coming
Buy an iPod

Featured Artists
Audioslave
Mya
Pat Metheny
O.A.R.
The Bad Plus
The Eagles
Matchbox Twenty
Live
Sheryl Crow
The Doors
Fischerspooner
Coldplay
Jack Johnson
Fleetwood Mac
U2
Bob Dylan
The Flaming Lips
Eminem
Sting
Missy Elliott
Jewel

New Releases More

Trouble No More
John Mellencamp

8 Bit Monk
Woven

True Reflections
Boyd Tinsley

Blues Singer
Buddy Guy

Exclusive Tracks More

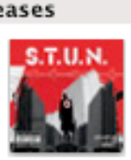
Exclusive
Pat Metheny

Exclusive
Audioslave

Exclusive
O.A.R.

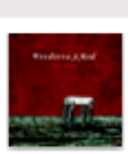
Exclusive
The Bad Plus

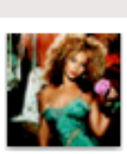
Pre-Releases More



Annihilation (Of the Generati...
S.T.U.N.

My Love Is Like...Wo
Mya


Shatterday - Single
Vendetta Red


Daddy - Single
Beyoncé

Just Added More

The Raven (Limited Edition)
Lou Reed

Baby One More Time
Britney Spears

Deftones
Deftones

The Story of the Blues (Colu...
Various Artists

Staff Favorites More

Let's Dance
David Bowie

Passion
Peter Gabriel

Elis & Tom
Antonio Carlos Jobim & Elis Re...

Songs for the Deaf
Queens of the Stone Age

Today's Top Songs

1. **Bridge over Troub...**
   Clay Aiken
2. **Flying Without Wi...**
   Ruben Studdard
3. **Crazy in Love**
   Beyoncé & Jay-Z
4. **Intuition**
   Jewel
5. **Miss Independent**
   Kelly Clarkson
6. **Clocks**
   Coldplay
7. **Unwell**
   Matchbox Twenty
8. **Time After Time**
   Cyndi Lauper
9. **Lose Yourself (So...**
   Eminem
10. **Losing My Religion**
    R.E.M.

More Top Songs

Today's Top Albums

1. **Bare**
   Annie Lennox
2. **Dance With My Fat...**
   Luther Vandross
3. **Keep It Together**
   Guster
4. **On and On**
   Jack Johnson
5. **A Rush of Blood t...**
   Coldplay
6. **0304**
   Jewel
7. **Blue**
   Joni Mitchell
8. **The Diva Series: A...**
   Astrud Gilberto
9. **The Very Best of S...**
   Sting & The Police
10. **Automatic for the ...**
    R.E.M.

More Top Albums

Distribution

114,164,448

BRITNEY.COM

Google™

YAHOO!®

EPIC

Santana

NTT DoCoMo

macromedia

YAMAHA

RollingStone.com

SonyMusicUSA

washingtonpost.com

GREENPEACE

NOKIA

CNN.com

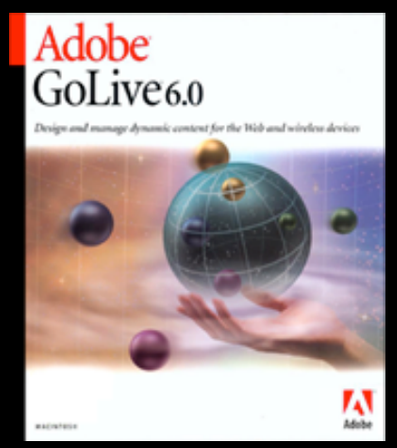
HBO®

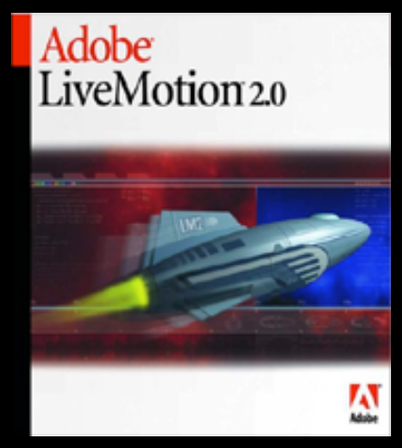
United Way

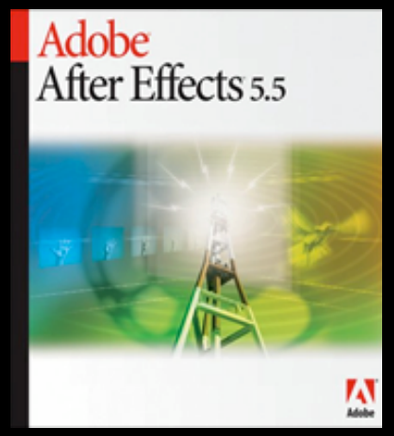
WGBH

HONDA

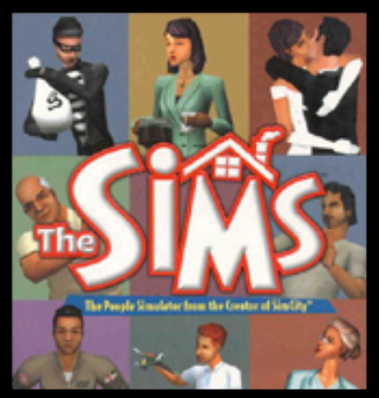
Multimedia Authoring Tools

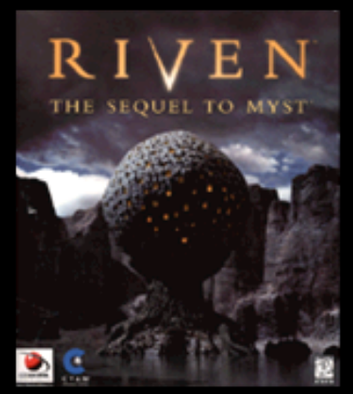




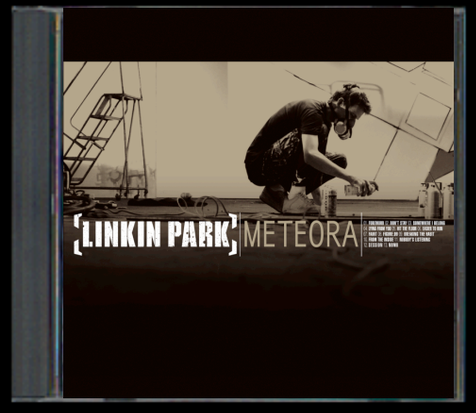


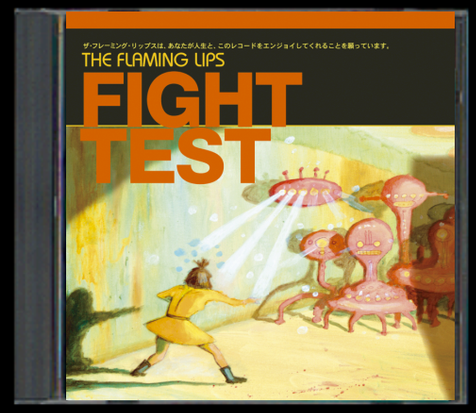
Software Titles





Enhanced Music CDS





More Than 200 Digital Cameras

QuickTime 6

- Native MPEG-4 support:
  - MPEG-4 video
  - AAC audio
  - .mp4 file format
- Instant-on streaming
- Skip protection
- Full screen enhancements
- Macromedia Flash 5
- DVCPro PAL
- JPEG 2000 (Mac OS X only)

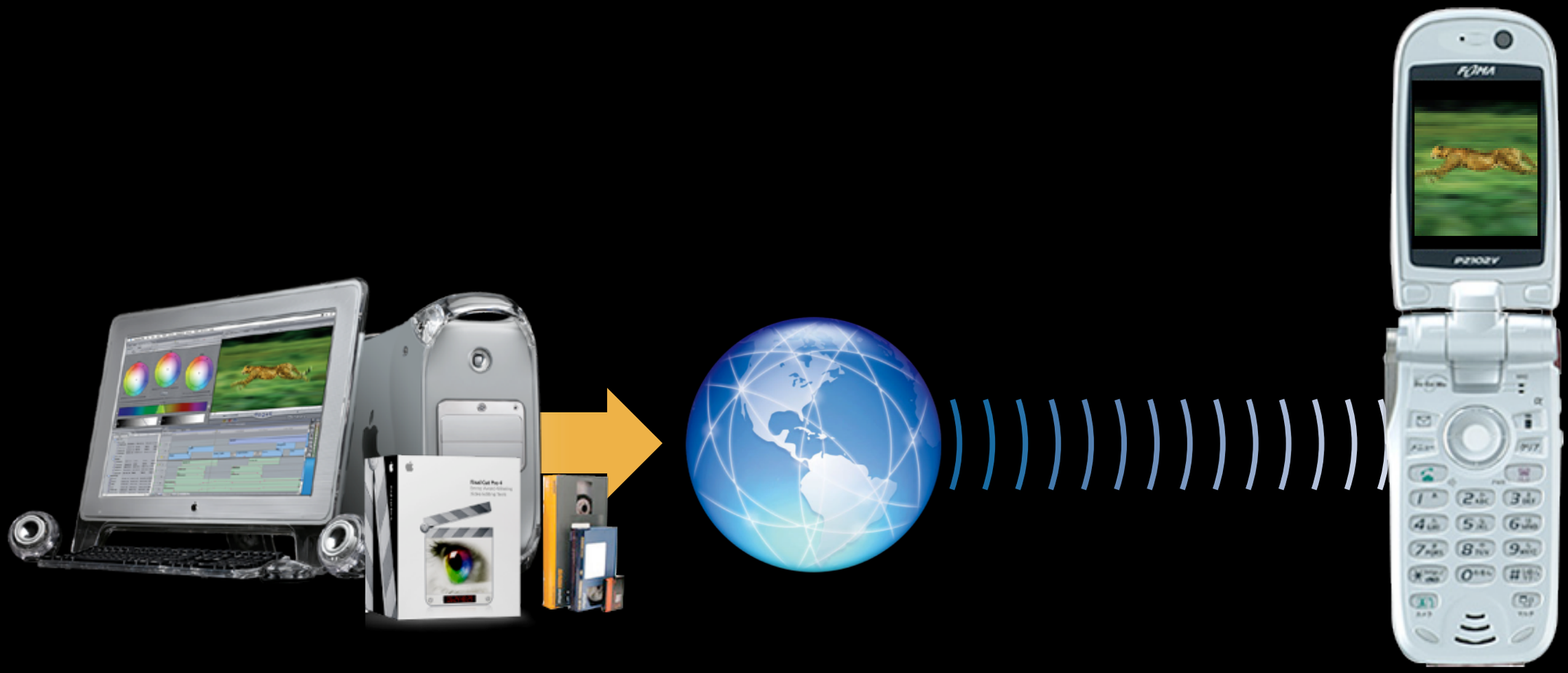
Rob Koenen

President
M4IF

2002–2003

QuickTime 6.3

- Native 3GPP support:
  - AAC and AMR audio
  - MPEG-4 and H.263 video
  - 3G Text (TX3G)
  - .3gp file format
- Playback of .amr and .sdv files



Professional Content Providers

Mobile Service Provider

Mobile Phone

Mobile Service
Provider

NTT DoCoMo

KDDI

FUJITSU

AT&T Wireless

vodafone

J-PHONE

vodafone

hp invent

MOTOROLA

SBC

Texas Instruments

Sun microsystems

orange

Sony Ericsson

SK Telecom

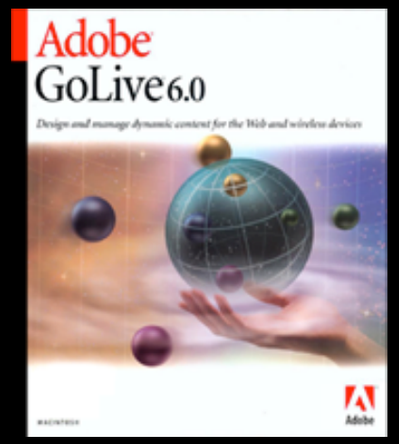
SK Telecom

Roberto Castagno, PhD.

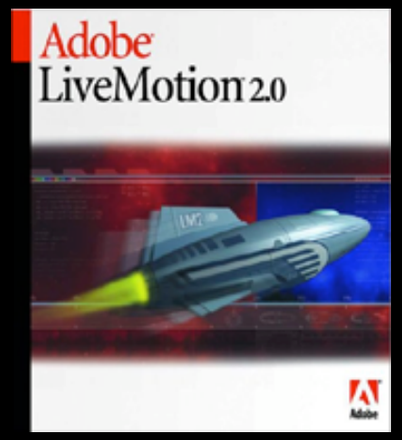
Technology Manager, Mobile Software
Nokia

What About 3GPP Tools?

Remember Us?

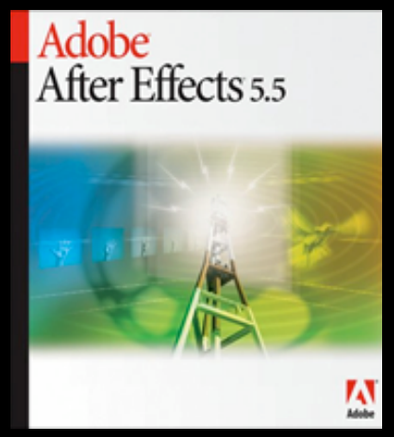

Adobe
GoLive 6.0
Design and manage dynamic content for the Web and wireless devices
Adobe

TOON BOOM
STUDIO
2D ANIMATION SOFTWARE
1.0


Adobe
LiveMotion 2.0
Adobe

LiveSlideShow 2

discreet
cleaner 6
The essential video encoder


Adobe
After Effects 5.5
Adobe

4.0
LiveStage
professional

COMPRESS
ENHANCE
PROCESS
HIPFLICS
DIGITAL VIDEO
For a Quick Fix of Your Flics

Final Cut Pro 4
Emmy Award-Winning
Video Editing Tools

Demo:
3G

Coming Attractions

QuickTime for Java

QuickTime for Java

- Compatible with Java 1.4.1
- Integrates with Java AWT and Swing components
- Uses standard Java metaphors
- Access QuickTime ‘C’ APIs through JNI
- Existing apps continue to use QTJava based on Java 1.3
- Available for Mac OS X and Windows
- Seeding now

QuickTime for Cocoa

QuickTime for Cocoa

- Today: NSMovie and NSMovieView
- Adding several new classes
  - Provide deeper access to movie data and controls
- Can mix with traditional ‘C’ QuickTime APIs
- Seeding shortly
  - Contact Guillermo Ortiz (quicktimeman@apple.com)

Performance

Performance

- Upgraded codecs
  - DV25, JPEG, H.263, MPEG-4, AAC
- High-rate data I/O
  - Benefits SD and HD
- Multi-threaded QuickTime apps
  - Improve responsiveness and speed

QuickTime Streaming Server

QuickTime Streaming Server

- Live and on-demand
- RTP or Icecast protocol
- Skip Protection
- Instant-on
- Apache-style plug-in architecture
- Built into Mac OS X Server
- Distributed under Apple Public Source License

QTSS Publisher

QuickTime Publisher

- Makes content management easy
- Edit movie metadata
- Create and manage playlists
- Automated hinting
- Template-based web page generation
- Bundled with Mac OS X Server

Demo

Chris LeCroy
Engineering Manager, Server Engineering

QuickTime Streaming Server

Hi-Def Video

Frame Sizes

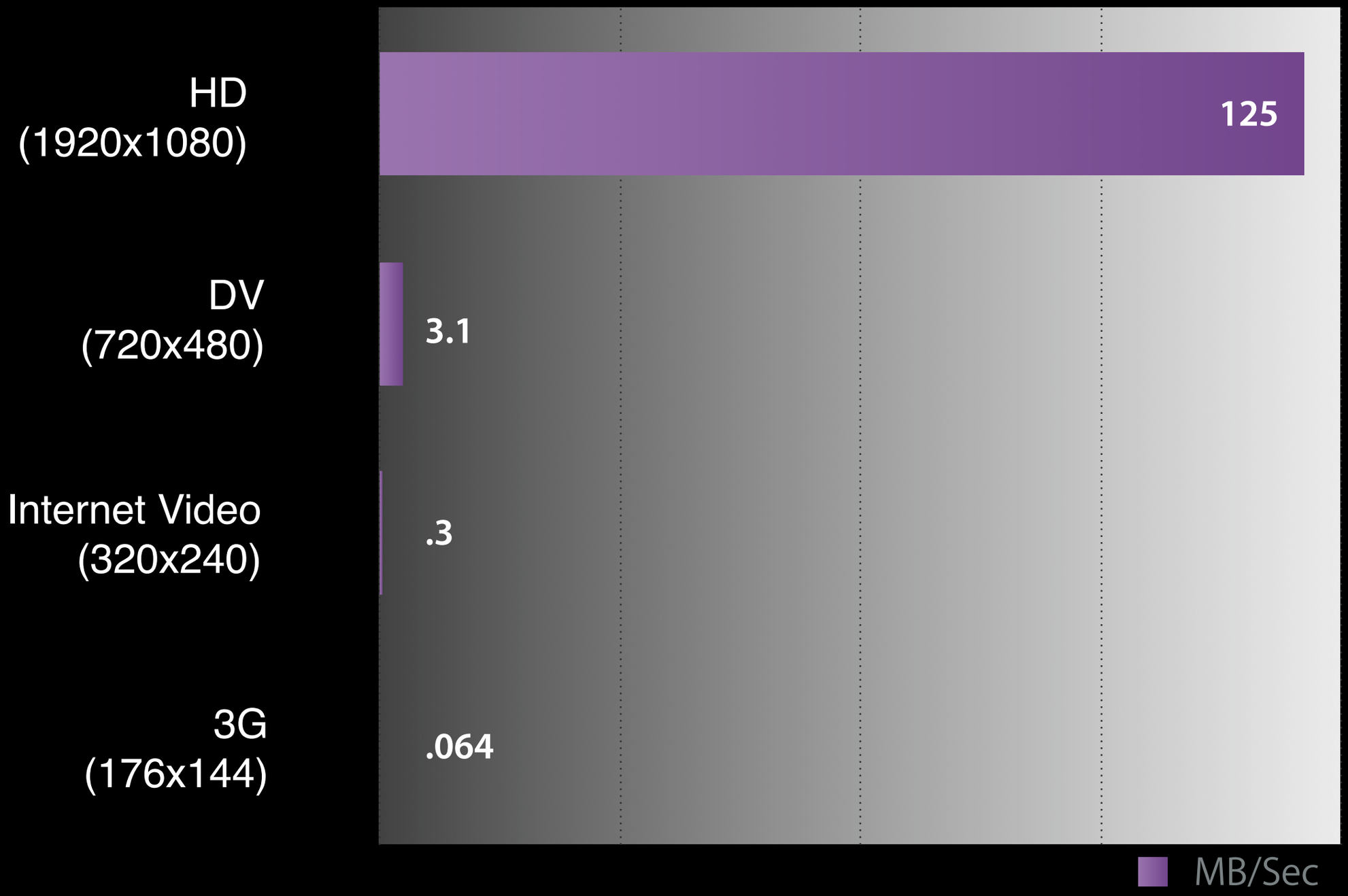
176 x 144

320 x 240

720 x 480

1920 x 1080

Data Rate Comparison



Closer Look

Pixlet

- Studio-grade
  - No objectionable artifacts
- Wavelet-based
- Proprietary algorithm
  - Super-optimized
- Arbitrary resolution
- Accepts deep color
- Selectable compression
  - Optimal range: 20:1 to 40:1

Demo

Hi-Def Video

Color Management With QuickTime

The Problem

The Solution: ColorSync

- Model source and destination color response functions
- Apply transformation to pixels to compensate
- Works great, but…
  - Traditionally a Pro publishing concern
  - ColorSync has typically been an “opt-in” feature

Graphic Importers and Exporters

- QuickTime provides easy-to-use still image APIs
- Supports many still image formats
  - JPEG, TIFF, BMP, GIF, PNG, JPEG 2000, PSD, QTIF, etc
  - Most formats can be tagged with color profiles
- QuickTime provides APIs to read and write profiles
- Up to the developer to use profile data
- Has led to widespread inconsistency of experience

Goal: Create a Consistent Experience

- Time to bring the model up-to-date
- Every application fits into a color-managed workflow
- GraphicImporter applies embedded profiles by default
- Simple conversion from QuickTime to CoreGraphics

Demo

Color Management With QuickTime

QuickTime Audio

Mac OS X Audio Architecture

Major innovation in OS technology

- Ground-up redesign of audio architecture
- Support modern HW capabilities
- Low-latency I/O
- Support bigger, deeper, wider formats
- Robust plug-in API
- Pro-level performance

SoundMedia2

QuickTime's new audio architecture

- Leverages CoreAudio capabilities
- Support for new audio formats
  - Breaks 64 kHz sampling rate barrier
  - 24-bit, 32-bit, Floating point samples
- Multichannel and surround audio
  - PCM audio and AAC compressed
- Sample accurate track-to-track sync

Demo

QuickTime Audio

It’s Stupid Movie Time

Wrap Up

Summary

- QuickTime for Java
- QuickTime for Cocoa
- Performance improvements
- QTSS Publisher
- Pixlet
- QuickTime color management
- SoundMedia2

Roadmap—Tuesday

	The Presidio	Pacific Heights	Haight/ Ashbury	SOMA
9:00	701 QuickTime State of the Union			
10:30			702 MPEG-4 Demystified	703 The Pro in QuickTime Pro
12:00				
2:00			704 Introduction to QuickTime Streaming	705 The Art of MPEG-4 Encoding
3:30			706 Designing a Distance Learning Solution With QuickTime	707 QuickTime Media Skins
5:00		708 QuickTime APIs Update	709 QuickTime on Campus— A Case Study	710 Preprocessing Principles

Roadmap—Wednesday

	Russian Hill	Pacific Heights	Haight/ Ashbury	SOMA
9:00	711 Audio and QuickTime		712 QuickTime for the Web	713 Introduction to QuickTime Interactivity
10:30			714 Large-Scale Webcasting: Macworld Keynote Case Study	715 QuickTime Interactivity Tools
12:00				
2:00	716 Advanced QuickTime Programming Techniques		717 3GP: Myth Versus Reality	718 AppleScript and QuickTime
3:30			719 Administering QuickTime Streaming Server	720 Content Creation for Mobile Phones: Top 10 Success Factors
5:00			721 WiFi and 3G: Let the Games Begin	722 Advanced QuickTime Interactivity

Roadmap—Thursday

	The Mission		Haight/ Ashbury	SOMA
9:00	727 QuickTime Streaming Server Programming		723 The Real Story About MPEG-4 Visual Licensing	724 What's New With QuickTime VR?
10:30			725 QuickTime and Enhanced CDs	726 Cutting-Edge Projects Using QuickTime VR
12:00				
2:00			728 Produce a Listening Party With QuickTime	729 Industrial-Strength Encoding
3:30			FF011 QuickTime Feedback Forum	
5:00				

Roadmap—Friday

	Pacific Heights	The Marina
9:00		
10:30	730 QuickTime Alternative Programming Environments	
12:00		
2:00		731 Internet Application Development: The New Frontier
3:30		
5:00		

Who to Contact

Guillermo Ortiz
QuickTime Technology Manager
quicktimeman@apple.com

http://developer.apple.com/wwdc2003/urls.html

For More Information

Documentation

General Information
http://www.apple.com/quicktime

Developer Information
http://developer.apple.com/documentation

QuickTime Information
http://developer.apple.com/QuickTime

Do Not Miss!

Lab: QuickTime Content Creation

Meet with QuickTime content experts for daily content specific topics that are of special interest to you. Bring your own media and Powerbook. No appointment is needed—first-come, first-served.

Sacramento Room

Lab: QuickTime Development

Meet with Apple's QuickTime engineers. Each day will emphasize a specific QuickTime development topic. Bring your own code and Powerbook. No appointment is needed—first-come, first-served.

Sacramento Room

Lab Hours

Monday	12:00pm to 6:00pm
Tuesday	9:00am to 6:00pm
Wednesday	9:00am to 6:00pm
Thursday	9:00am to 4:30pm
Friday	9:00am to 6:00pm

WWDC 2003

Worldwide Developers Conference